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EXAMINER

WACHTEL, ALEXIS A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/027,153

Applicant(s)

LARICCHIA ET AL.

Examiner

Alexis Wachtel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 2-22-05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-10 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 3,4 and 11-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4-1-05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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***Detailed Action***

***Response to Amendment***

1. Applicant's amendment and accompanying Remarks filed 3-4-05 have been entered and carefully considered.

The amendment is sufficient to overcome the 112 1<sup>st</sup> paragraph rejections of claims 10,18-20. The amendment is insufficient to overcome the obviousness rejections of claims 1,5,6,2,7-10,18-20.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1,5,6 are rejected under 35 U.S.C. 103(a) as obvious over US 2,228,028 to Brower.

With respect to claim 1, Brower teaches an apparatus comprising: a prewash section (2); a feed conduit (h) with an inlet in communication with said prewash section; and extractor section (18); a product conduit (36) with an outlet in communication with said extractor section; and a conduit (17) having an outlet in communication with the prewash section and an inlet in communication with the extractor section. Examiner

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notes that Fig.1 as shown by Brower does not exclude the possibility of spatially orienting extractor section (18) above the prewash (2)

Per claim 5 wherein the inlet (h) to the feed conduit to said prewash section is disposed proximate to a bottom of said prewash section

Per claim 6: wherein said feed conduit (h) includes an inlet for water (11) upstream of said inlet to said prewash section and an outlet (4) for caustic upstream of said inlet for water.

5. Claims 2,7-10 and 18-20 are rejected under 35 U.S.C. 103(a) as obvious over US 228028 to Brower and US 2337467 to Hewlett and US 2001/0015136 A1 to Letzel.

With respect to claim 2, Brower as set forth above fails to teach that said extractor section includes a coalescer at a top thereof. Letzel teaches a contacting distillation column that corresponds to an extractor. The contacting distillation column includes a plurality of contacting trays that contain entrained liquid droplets which are de-entrained or separated by the separation tray so that the vapor can rise to the next vertically higher contacting tray and the de-entrained liquid can flow by way of gravity to a vertically lower contacting tray. This de-entrainment step is accomplished by making use of the demister separation means (coalescer) (pp.2, [0016]). As per Fig.1, Examiner notes that demister separation means are designed to function along the entire height of the column. In view of this teaching it would have been obvious to one of ordinary skill to have replaced the extractor disclosed by Brower with the contacting distillation column (extractor) disclosed by Letzel since the apparatus disclosed by Letzel is equivalently suitable for use in similar applications. Examiner notes that on substituting

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the extractor of Letzel for the extractor of Brower, one of ordinary skill would have made provisions for providing conduit inlets to the extractor of Letzel in a substantially similar manner as disclosed by Brower.

Per claim 7: Wherein the inlet to said product conduit is above said coalescer. Examiner notes that on substituting the extractor of Letzel for the extractor of Brower, one of ordinary skill would have made provisions for providing conduit inlets/outlets to the extractor of Letzel in a substantially similar manner as disclosed by Brower. Since Letzel discloses a contacting distillation column (extractor) that has multiple coalescers, it is reasonable to assume that the product conduit is above at least one coalescer.

Per claim 8: Examiner notes that on substituting the extractor of Letzel for the extractor of Brower, one of ordinary skill would have made provisions for providing conduit inlets/outlets to the extractor of Letzel in a substantially similar manner as disclosed by Brower. Since Letzel discloses a contacting distillation column (extractor) that has multiple coalescers, it is reasonable to assume that the conduit included with an outlet in communication with said extractor section below at least one coalescer is inherently provided.

Per claim 9: Brower and Letzel as set forth above teach a prewash section and extractor section structurally integrated together, wherein the integrated unit is a vessel such that the extractor section has a coalescer at top thereof.

Per claim 10: wherein a conduit has an inlet in communication with a bottom of said extractor section. Examiner notes that on substituting the extractor of Letzel for the extractor of Brower, one of ordinary skill would have made provisions for providing

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conduit inlets/outlets to the extractor of Letzel in a substantially similar manner as disclosed by Brower. Since Letzel discloses a contacting distillation column (extractor) that has multiple coalescers, it is reasonable to assume that the conduit included with an inlet in communication with said extractor section below at least one coalescer is inherently provided.

With respect to claim 18, Brower discloses an apparatus comprising: an extractor section (18); a conduit (19) with an outlet in communication with said extractor section proximate a bottom of said extractor section; a product conduit (36) with an inlet in communication with said extractor section proximate a top of said extractor section; a structure for facilitating contact between chemical elements disposed between the outlet of said feed conduit (17) and the inlet of said product outlet (Examiner notes that the inner walls of the extractor section facilitate contact between chemical elements between the outlet of said feed conduit (17) and the inlet of said product outlet); a conduit (17) with an inlet disposed below the outlet to said feed conduit.

Brower fails to teach a coalescer in said extractor section disposed between the inlet to said product conduit and a top of said structure for facilitating contact between chemical elements, said coalescer permitting no more than 1 ppm of alkali from passing therethrough. Letzel teaches a contacting distillation column that corresponds to an extractor. The contacting distillation column includes a plurality of contacting trays that contain entrained liquid droplets which are de-entrained or separated by the separation tray so that the vapor can rise to the next vertically higher contacting tray and the de-entrained liquid can flow by way of gravity to a vertically lower contacting tray. This de-

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entrainment step is accomplished by making use of the demister separation means (coalescers) (pp.2, [0016]). As per Fig.1, Examiner notes that demister separation means are designed to function along the entire height of the column. In view of this teaching it would have been obvious to one of ordinary skill to have replaced the extractor disclosed by Brower with the contacting distillation column (extractor) disclosed by Letzel since the apparatus disclosed by Letzel is equivalently suitable for use in similar applications. Examiner notes that on substituting the extractor of Letzel for the extractor of Brower, one of ordinary skill would have made provisions for providing conduit inlets to the extractor of Letzel in a substantially similar manner as disclosed by Brower.

Per claims 19 and 20: Examiner notes that the extractor having coalescers as disclosed by Brower and Letzer inherently has an open settling volume disposed between a top of said structure for facilitating contact between chemical elements and at least one coalescer as shown in (Letzer, Fig.1)

#### ***Prior Art of Record***

6. The prior art of record and not relied upon is considered pertinent to Applicant's disclosure. In addition, the following references are cited for disclosing various aspects of Applicant's invention:

US 3473027; US 2986514; US 2337467; US 3980582; US 4562300;  
US 6306288; US 6749741

#### ***Allowable Subject Matter***

7. The following is a statement of reasons for the indication of allowable subject matter: With respect to claims 3 and 4 it would not have been obvious to have

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integrated the prewash and extractor into one vessel without the use hindsight. In particular, unit (8) which is located in between prewash (2) and extractor (18) would introduce design complications that could only be overcome with hindsight teachings. With respect to claims 11-17, the closest prior art to Brower fails to teach or suggest a process as claimed in claim 11 wherein the hydrocarbon stream is mixed with an alkaline stream with this resulting mixed stream being fed to a prewash section containing alkali to convert hydrogen sulfide to a sulfide salt. US 2337467 to Hewlett teaches that hydrogen sulfide can be removed from hydrocarbons by contacting the hydrocarbon with a caustic solution (PP.1, Right Col, lines 32-42). However, despite this teaching, Hewlett and Brower cannot be combined as prior art since because Brower specifically teaches to avoid converting hydrogen sulfide in the extractor (2) (corresponding to a prewash). Brower indicates that feed to extractor (2) is extracted with an aqueous solution of caustic alkali under conditions primarily to remove thiophenols only (pp.2, lines 40-43, right column). As a result, one of ordinary skill would not apply the teachings of the Hewlett patent to extract hydrogen sulfide in the extractor (2) of the Brower patent because the Brower patent teaches against extracting hydrogen sulfide in extractor (2). Accordingly, there is no motivation to combine Brower and Hewlett.

### ***Arguments***

8. Applicant contends that Brower does not render obvious the limitation "extractor section is disposed directly above the prewash section". Examiner wishes to note that process diagrams are not drawn too scale and merely illustrate the downstream or



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upstream operational characteristics of process components. The process of Brower would in no way be negatively impacted by the placement of extractor (18) at a higher elevation than prewash (2). Additionally, Examiner has interpreted "directly above" to mean at an elevation higher than a set reference point, and in the reference points general vicinity. Therefore Applicant's arguments are found to be unpersuasive.


Applicant argues that Brower (18) is a liquid-liquid contacting vessel whereas Letzel discloses a distillation column. However, Brower discloses that (18) may be an extractor of similar design to (2). Brower discloses (2) as being a distillation extractor (pp.2, Col 2, lines 39-41). Therefore (18) is disclosed as being a distillation extractor. Accordingly, substituting the contacting distillation column disclosed by Letzel for (18) as disclosed by Brower would have been obvious to one of ordinary skill. Additionally, given that the extractor structure claimed by Applicant in claim 18 is identically disclosed by Letzel, the art combination of Brower and Letzel would yield an extractor section inherently capable of preventing less than 1ppm of alkali from passing through its trays.

### **Conclusion**

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Wachtel whose telephone number is 571-272-1455. The examiner can normally be reached on 10:30am to 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Glenn Caldarola, can be reached at (571)-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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